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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/572,506	03/17/2006	Tae-Hyun Jeon	127333	4267
25944 7590 10/28/2010 OLIFF & BERRIDGE, PLC P.O. BOX 320850 ALEXANDRIA, VA 22320-4850				
EXAMINER				
HAN, KWANG S				
ART UNIT		PAPER NUMBER		
1727				
NOTIFICATION DATE		DELIVERY MODE		
10/28/2010		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

OfficeAction25944@oliff.com
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Office Action Summary

Application No.

10/572,506

Applicant(s)

JEON ET AL.

Examiner

Kwang Han

Art Unit

1727

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 August 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4.11, 14.16 and 18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4.11, 14.16 and 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 August 2010 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Paper No(s)/Mail Date _____
- 6) ☐ Other: _____

**LITHIUM ION SECONDARY BATTERY HAVING ENHANCED WELDABILITY AND
SEALING CAPABILITY**

Examiner: K. Han SN: 10/572,506 Art Unit: 1727 October 26, 2010

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 5, 2010 has been entered. Claim 4 was amended.
2. The text of those sections of Title 35, U.S.C. code not included in this action can be found in the prior Office Action issued on August 28, 2009.

Specification

3. The objection to the specification has been withdrawn in view of the Applicants amendment to the title.

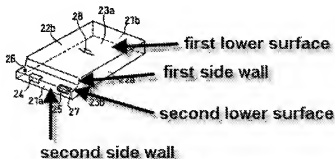
Claim Rejections - 35 USC § 112

4. The claim rejections under 35 U.S.C. 112, second paragraph, on claim 4 are withdrawn, because the claim has been amended.

Claim Rejections - 35 USC § 103

5. Claims 4, 11, 16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murashige (JP 2003-257385, machine translation) in view of Watanabe et al. (US 5279623) and Hiratsuka et al. (WO 99/25036 using US 6746798 for translation and citation).

Regarding claims 4 and 18, Murashige discloses a lithium ion secondary battery [Abstract] comprised of a can with an opening at an upper portion (Drawing 4), where the upper end of the can has a two-stage step formed with a first lower surface, first side wall extended upwardly from the first lower surface, a second lower surface located higher than the first lower surface while being extended outwardly from the first side wall, and a second side wall extended upwardly from the second lower surface as shown in the figure below (Drawing 2);



a cover (31, cap) having a contact surface facing the flange of the can and the cap not inserted into the can (Drawing 5), an electrode assembly (33) located on the first lower surface [0023], a protruded terminal (24, 25) through the second lower surface located

close to the first side wall of the can, and the can is welded to form a seal [0013] but does not explicitly teach the use of micro-arc welding or the use of a flange extended outwardly from an upper end of the can.

Watanabe teaches a method of forming an electrochemical device where the members for a case are joined by using a micro plasma welding process because it provides for good sealing performance without deforming the case by heat distortion (2:3-20). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a micro plasma welding process to seal the cover of the battery to the case in the battery of Hiratsuka because Watanabe teaches that micro plasma welding is a suitable process for providing good sealing performance without deforming the case by heat distortion.

Hiratsuka teaches a lithium ion battery with a flange extended outwardly from an upper end of the battery for the benefit of reducing the weight of the sealed battery by providing a flange at the opening of the can and reducing the thickness of the body (2:48-65). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a flange at the upper end of the battery can because Hiratsuka teaches this allows for reduction of weight of the battery.

Regarding limitations recited in Claims 4 which are directed to a manner of operating the disclosed device (e.g. "so that a cooling jig can be installed and contacted" etc.), it is noted that neither the manner of operating a disclosed device nor material or article worked upon further limit an apparatus claim. Said limitations do not differentiate apparatus claims from prior art. See MPEP § 2114 and 2115. Further, it

has been held that process limitations do not have patentable weight in an apparatus claim. See *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969) that states "Expressions relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim." Furthermore, a battery structure with a flange at the opening and a terminal located at a second lower surface such as the battery of Murashige modified by Watanabe and Hiratsuka have the sufficient structure to have a cooling jig installed and contacted such that only the outer surface of the flange of the can and the outer surface of the cap are exposed to the outside.

Regarding claim 11, Murashige discloses a battery cover which has a flat shape (Drawings 1 and 4).

Regarding claim 16, Murashige is silent towards the width of the flange. Hiratsuka teaches the size of the flange can be arbitrarily determined to be adaptable to the material and strength of the can and cover teaching the size to be a result effective variable. It would have been obvious to one of ordinary skill in the art at the time of the invention to vary the size of the flange since it has been held that discovering the optimum ranges for a result effective variable such as width of a flange involves only routine skill in the art in the absence of showing of criticality in the claimed range (MPEP 2144.05) In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

6. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Murashige, Watanabe et al., and Hiratsuka et al. as applied to claim 4 above, and further in view of Kunkel (US 1424144).

The teachings of Murashige and Watanabe as discussed above are herein incorporated.

Regarding claim 14, Murashige and Watanabe are silent towards the cap having a flange that faces a flange of the can and has a space which is formed when opened.

Kunkel teaches a battery cover (6, 7) having a flange (8) having a space when opened so that it can be detachably secured to provide access to openings and terminals of the battery (1:11-28; 2:69-85). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a battery cover having a flange with a formed space because Kunkel teaches this structure can provide for a detachable cover with access to openings and terminals.

Response to Arguments

7. Applicant's arguments with respect to claims 4, 11, 14, 16, and 18 have been considered but are moot in view of the new ground(s) of rejection.

Contact/Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kwang Han whose telephone number is (571) 270-5264. The examiner can normally be reached on Monday through Friday 8:00am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on (571) 272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. H./
Examiner, Art Unit 1727

/Dah-Wei D. Yuan/
Supervisory Patent Examiner, Art Unit 1727